

COAL INDUSTRY
RESEARCH, DEVELOPMENT AND DEMONSTRATION
BUSINESS PLAN

Final Report
by:
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THE COAL ASSOCIATION OF CANADA

June 15, 1989.

Dr. T. D. Brown
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P. O. Bag 1280
Devon, Alberta
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Dear Dr. Brown:

Re: Coal Industry Research, Development and Demonstration Business Plan

Attached to this letter is the final version of the above plan which was carried out for The Coal Association of Canada by Mr. R. Gronotte. The plan was reviewed and approved by the Board of Directors of The Association and is submitted in accordance with the terms of the contract under which CANMET jointly funded the work.

The members of The Coal Association of Canada thank CANMET for this support in our efforts to establish a firm basis for our future approach to coal research and development. We also thank the Department of Supply and Services for expediting the funding process and showing that it can be easy to work with government funding agencies.

This document provided a critical review of funding and related research efforts from industry's perspective. The principal objective was to make recommendations which would provide an industrial focus on R&D and lead to more effective use of research funds. The development of the plan, of necessity, focussed on examining the existing structure with regards to R&D funding, performance and delivery to industry. It was both critical and complementary of all the elements in the R&D chain.

Cont'd . . .

Since the initiation of the business plan a number of events have occurred reflecting the dynamic state of the R&D community and the coal industry's R&D interests. Well before the report was finished the Board of Directors took action to establish the position of a fulltime Director, Research & Development. A second event was the continuing development and reassessment of business oriented objectives to provide direction and input to Canada's institutional research performers. These events along with CANMET's designation as a Technology Centre emphasize the need to strengthen cooperation between the coal industry and the coal research community.

The appointment of Dr. John Railton as a fulltime Director of Research & Development occurred on January 1st, 1989. His immediate responsibilities include the fleshing out in greater detail some of the principles identified in the plan. This appointment and the further definition of the plan represents a major change in the policy of The Coal Association.

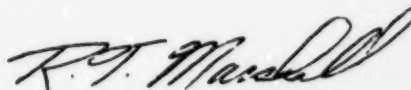
In order to implement the business plan several action items were identified as targets for completion during 1989:

1. Ensure that the R&D Committee of The Coal Association is functioning in a more meaningful way.
2. Develop a Research Policy.
3. Develop a "Coal Research Funding Manual".
4. Set coal industry priorities for research.
5. Provide input and support for the rationalization of the Devon Coal Research Centre.

The accomplishment of the above items will be a significant step forward. We expect to have completed them by the end of 1989.

Once again we would like to thank CANMET for their help and support.

Yours truly,



R. T. Marshall
President

RTM/JBR/td

COAL ASSOCIATION OF CANADA
RESEARCH, DEVELOPMENT AND DEMONSTRATION
BUSINESS PLAN

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EXECUTIVE SUMMARY

Background

The importance of coal to Canada's economic well-being and to its' energy security cannot be overstated. The coal industry's contribution to the economy in the areas of taxes, royalties, jobs and international trade balance is significant. As such, a vigorous and healthy coal industry is essential to Canada.

It is well recognized that technological innovation is an important element in sustaining a healthy and expanding coal industry. Research, development and demonstration is a fundamental part of innovation and implementation. However, to be a beneficial contributor to a business enterprise, RD&D must be carried out in a focused, effective and efficient business-oriented manner. This also requires cooperation and coordination among industry, governments and the research community.

The purposes of the Business Plan set forth herein, are to provide the basic direction and objectives for coal RD&D, to define the organizational means to implement and monitor the plan and to give consideration to external factors such as funding and the interrelationships between the involved parties that impact on the overall coal research activities.

EXECUTIVE SUMMARY, cont'd.

Current Situation

The coal industry is not a homogeneous group of companies but one where significant differences exist in their markets, the type and quality of the product, mining conditions, economic health and social and political environment. Thus, it is difficult to determine areas of significant commonality. Additionally, protection of ones potential competitive advantage has stifled technology transfer and joint research activities among the companies.

Difficult economic times and the coal companies' primary interest in short term applied research has somewhat complicated the overall RD&D predicament as to how industry and government should share coal research responsibility.

Duplication, overlapping efforts and responsibilities and other inefficiencies, in government and research agencies, as well as industry's concern over government's attitude toward coal's long term future, further exacerbates the coal RD&D situation.

The research activities of the three research organizations at the Coal Research Centre at Devon, Alberta gives concern as to the most effective and efficient use of the resources at this excellent physical facility.

Although, it is probable that not all of the above concerns can be entirely eliminated, it is strongly felt that with the implementation of this Business Plan and with the cooperation of all parties involved, the negative impact can be minimized and tangible benefits gained.

EXECUTIVE SUMMARY, cont'd.

The Direction

For the Business Plan to be successful, it is essential that the Plan's basic purpose and direction is clearly stated. The following Mission Statement provides the basis or framework for the development and implementation of a results-oriented RD&D Plan.

MISSION STATEMENT

To actively promote, through discussion and coordination of members, governments and the research community, a level of cost-effective research, development and demonstration meeting the industry's need and directed toward new and increased coal usage through improvement of the Canadian Coal Industry's competitive position while protecting the environment and the health and safety of all.

The Plan

This "Mission Statement" together with "Position Statements" (see pages 7-8) which represent industry's interests, attitudes and position, served to guide the development of the following strategic objectives or expectations of the RD&D Business Plan.

EXECUTIVE SUMMARY, cont'd.

The Plan, cont'd.

STRATEGIC OBJECTIVES

1. To ensure that coal research programs are market driven and demonstrably important from a business perspective.
2. To implement a comprehensive and systematic approach to planning and prioritizing coal research taking into account the varied interests and needs of the membership and the various markets that are involved.
3. To convince various government agencies of the critical need for appropriate financial support of coal research on an on-going long term basis.
4. To provide government agencies and the public and private research sectors with a cohesive, focused industry position on coal research needs.
5. To work more closely with the coal consumers in relation to coal research and its potential impact on the marketability of Canadian coal.
6. To promote a knowledge of the technical and research aspects of the coal industry to university students so as to attract strong technically-oriented personnel into the industry.
7. To develop a "Coal Research Funding Manual" which would include federal and provincial government funding sources, their applicability and the means to expeditiously access such funds. This manual would be available to the membership and would be periodically updated.

EXECUTIVE SUMMARY, cont'd.

The Plan, cont'd.

STRATEGIC OBJECTIVES, cont'd.

8. To encourage governments to simplify procedures relating to industry/governments cooperative undertakings.
9. To promote the effective and efficient use of all research funding.

R&D Committee

The successful implementation of the Plan is greatly dependent on the C.A.C.'s R&D Standing Committee and the Director of R&D with the support and guidance of the Board of Directors coupled with the cooperation and coordination of outside involved parties.

It is implicit in the execution of the Plan that the Committee takes a proactive, focused approach in carrying out its responsibilities. As such, the committee members will be accountable to the C.A.C.'s B.O.D. and to their respective companies for their performance to Plan.

In order to effectively perform its role, the R&D Committee's structure, its mandate, terms of reference and objectives are set out (see pages 11-14) commensurate with and in support of the overall Business Plan.

EXECUTIVE SUMMARY, cont'd.

Director of R&D

Full-time attention and leadership is essential to satisfying the demands of the Business Plan and to be responsive, on an on-going basis, to the C.A.C. members both individually and collectively and to national interests. The Director of R&D would provide this ongoing involvement as well as leadership.

In June 1988, the report on "Preliminary Recommendations and Options for the Coal R&D Business Plan" was submitted to the C.A.C. Board of Directors. It was recommended that a full-time Director of R&D be added to the C.A.C. staff. This important element in the successful implementation of the Business Plan was subsequently approved and the position filled January 1989.

The Director's role as Chairman of the R&D Committee will supply the cohesive force among the Committee members in facilitating, expediting and monitoring its activities. This role and other responsibilities of the Director are defined on pages 15-17.

Strategic and Program Development

The formulation of specific and detailed research strategies and programs is considered the appropriate responsibility of the CAC's RD&D planning group in conjunction with other involved parties. As a result, it is not covered in this Business Plan.

EXECUTIVE SUMMARY, cont'd.

Strategic and Program Development, cont'd.

However, there are certain basic concerns (see pages 18-19) that need some attention. These recommendations are offered to address these concerns:

1. Segregate programs into groups with common interests so there is something meaningful to all.
2. Strive for an attitudinal change where the concern for protecting competitive advantage on technology innovation is shifted from the individual company to that of the Canadian coal industry as a whole.
3. Seek out ways to demonstrate the economic benefit and the bottomline gains in a tangible way and create an awareness of this to counteract the stigma as to the value of R&D.
4. Provide a periodically updated manual of the sources of R&D funds, their application criteria, and the means to expedite the obtainment of such funds.

RD&D Funding

Financial support from both industry and governments is crucial to an effective RD&D program. Industry's funds are internally sourced as a company's cost of doing business, while the governments generate funds through taxation and royalties. The competition for these funds is fierce

EXECUTIVE SUMMARY, cont'd.

RD&D Funding, cont'd.

not only among the energy and resource industries but also from the more exotic high tech interests. There is also concern over government-industry apportionment of coal research funds.

Important considerations for industry are how to identify and readily access government research funds and the establishment of the appropriate funding level for coal RD&D.

A workable approach to RD&D funding and all its implications is complex and time consuming. It is therefore sensible that this should be the responsibility of the Director of R&D, where it will be handled on an on-going basis.

However, general concerns and recommendations thereto are included (see pages 21-25) which will serve as a base and guide to a more comprehensive assessment and solution later.

Federal/Provincial Governments

It is very clear that the coal industry will be expected to participate significantly in both direction and financial support for RD&D in the future. Recent federal government policy statements on R&D identify key targets for CANMET in relation to the private sector and raise the issue as to whether the government should perform R&D at all (see page 27).

EXECUTIVE SUMMARY, cont'd.

Federal/Provincial Governments, cont'd.

The implementation of the Business Plan will be a major step forward by industry toward cooperation and coordination between all parties in a focused business based approach to RD&D.

Likewise, it is felt that governments must examine their organization to improve their efficiency and effectiveness. In this consideration, care must be taken not to lower the importance of coal or coal research.

A few important points for governments consideration are included (see page 28).

Research Community

The coal research personnel and facilities in Canada are quite capable of serving the needs of the coal industry but the lack of focus and direction has resulted in overlapping and duplication of research activities ending in inappropriate and ineffective use of funds.

Likewise, it appears that coal research efforts may, in some cases, be better served by consolidation of certain functions, peoples and facilities.

The Coal Research Centre at Devon, Alberta serves as a good example of this and as such will be the principal area of concern in the comments, position and recommendations (see pages 30-33).

EXECUTIVE SUMMARY, cont'd.

Research Community, cont'd.

The amalgamation of Devon is complicated and presents a number of difficult issues that must be resolved. If, as a result of this, the restructuring cannot be rationalized at this time, consideration should be given to the establishment of a "National Coal Research Committee". This committee chaired by industry and represented by all involved parties could provide a central forum for directing, communicating and coordinating coal research efforts (see page 33).

International R&D

It is important to monitor world-wide coal research activities and to maintain strong technological ties between the Canadian coal industry and its foreign counterparts. Further, care must be taken so as to utilize foreign technologies and avoid duplication wherever possible and prudent.

Coal Consumers

It is vital to our research efforts to know what are the consumers present and future needs and where they may be going as it effects coal utilization. An on-going communication link between the coal producers' representatives who are in regular contact with the coal consumers can be very valuable to the Director of R&D and the R&D Committee in assessing future research needs.

RÉSUMÉ DE LA DIRECTION

Données documentaires

Il est impossible d'exagérer l'importance du charbon pour le bien-être économique du Canada et la sécurité de son énergie. La contribution qu'apporte l'industrie charbonnière à l'économie dans les domaines des taxes et des impôts, des redevances, des emplois et de la balance commerciale internationale est considérable. Comme telle, une industrie charbonnière robuste et saine est essentielle au Canada.

Il est bien reconnu que l'innovation technologique constitue un élément important au maintien d'une industrie charbonnière saine et en expansion. La recherche, le développement et l'application de la recherche forment une partie fondamentale de l'innovation et de la mise en oeuvre. Cependant, pour pouvoir apporter une collaboration utile à une entreprise commerciale, la RD&AR doit être exécutée d'une manière concentrée, efficace et compétente axée sur les affaires. Ce faire exige également une collaboration et une coordination entre l'industrie, les gouvernements et le groupe de recherche.

Le plan d'entreprise énoncé dans le présent document a pour buts de donner une orientation et des objectifs de base à la RD&AR sur le charbon, de définir des moyens d'organisation pour mettre en pratique et surveiller le plan et d'examiner les éléments externes, comme le financement et les interrelations entre les intéressés, qui influencent l'ensemble des activités de recherche sur le charbon.

RÉSUMÉ DE LA DIRECTION (suite)

Situation actuelle

L'industrie charbonnière n'est pas formée d'un groupe homogène de sociétés, mais plutôt d'un groupe présentant d'importantes différences dans leurs marchés, le genre et la qualité du produit, les conditions d'extraction, la santé économique et le milieu social et politique. Il est donc difficile de déterminer des domaines de traits communs importants. De plus, la protection de l'avantage concurrentiel éventuel a étouffé le transfert des acquis technologiques et les activités de recherche communes entre les sociétés.

Des moments économiques difficiles et l'intérêt principal des sociétés charbonnières en recherche appliquée à court terme ont compliqué quelque peu la situation difficile de la RD&AR en ce qui a trait à la façon dont l'industrie et le gouvernement devraient partager la responsabilité de la recherche sur le charbon.

Le double emploi, des efforts et des responsabilités qui se chevauchent et d'autres inefficacités dans les organismes gouvernementaux et de recherche, ainsi que la préoccupation de l'industrie concernant l'attitude du gouvernement envers l'avenir à long terme du charbon, ont aggravé davantage la situation de la RD&RA sur le charbon.

Les activités de recherche des trois organismes de recherche situés au Centre de recherche sur le charbon à Devon (Alberta) créent de l'inquiétude quant à la méthode la plus efficace et la plus compétente d'utiliser les ressources à cette excellente installation.

Bien qu'il ne soit probablement pas possible d'éliminer complètement toutes les préoccupations susmentionnées, on croit fermement que la mise en

RÉSUMÉ DE LA DIRECTION (suite)

application du présent plan d'entreprise et la collaboration de tous les intéressés devraient minimiser l'effet négatif et produire des avantages tangibles.

La direction

Pour que le plan d'entreprise puisse réussir, il est essentiel que l'objectif de base et la direction du programme soient clairement énoncés. L'énoncé de mission ci-dessous offre la base ou le cadre de l'élaboration et de la mise en oeuvre d'un programme de RD&AR axé sur les résultats.

ÉNONCÉ DE MISSION

Encourager activement, au moyen de discussions et de la coordination des membres, des gouvernements et du groupe de recherche, un niveau de recherche, de développement et d'application de la recherche rentable répondant aux besoins de l'industrie et visant une utilisation nouvelle et accrue du charbon grâce à l'amélioration de la position concurrentielle de l'industrie canadienne du charbon tout en protégeant l'environnement, ainsi que la santé et la sécurité de tous.

Le programme

Cet «énoncé de mission», de concert avec les «énoncés de position» (voir les pages 7 et 8) qui représentent les intérêts, les attitudes et la

RÉSUMÉ DE LA DIRECTION (suite)

Le programme (suite)

position de l'industrie ont servi à guider l'élaboration des objectifs ou des espoirs stratégiques suivants du plan d'entreprise de la RD&AR.

OBJECTIFS STRATÉGIQUES

1. Assurer que les programmes de recherche sur le charbon soient motivés par le marché et qu'ils soient prouvés importants du point de vue commercial.
2. Mettre en oeuvre une méthode détaillée et systématique pour planifier et établir des priorités pour les travaux de recherche en tenant compte des divers intérêts et besoins des membres et les divers marchés en cause.
3. Convaincre les divers organismes gouvernementaux du besoin crucial d'un appui financier approprié sur une base permanente à long terme pour la recherche.
4. Fournir aux organismes gouvernementaux, ainsi qu'aux secteurs public et privé, une position de l'industrie cohésive et concentrée sur les besoins en recherche sur le charbon.
5. Travailler en collaboration plus étroite avec les consommateurs de charbon relativement à la recherche sur le charbon et ses conséquences éventuelles sur la facilité d'écoulement du charbon canadien.
6. Encourager la connaissance des aspects techniques et de recherche de l'industrie charbonnière chez les universitaires de façon à attirer un personnel technique solide dans l'industrie.

RÉSUMÉ DE LA DIRECTION (suite)

Le programme (suite)

OBJECTIFS STRATÉGIQUES (suite)

7. Préparer un «Manuel de financement de la recherche sur le charbon» qui mentionnerait les sources de financement des gouvernements fédéral et provinciaux, leur applicabilité et les moyens d'obtenir rapidement l'accès à ces fonds. Le manuel, qui serait mis à jour à intervalles réguliers, serait offert aux membres.
8. Encourager les gouvernements à simplifier les méthodes relatives aux entreprises coopératives industrie-gouvernements.
9. Favoriser une utilisation efficace et rentable de tous les fonds de recherche.

Comité de la R&D

Le succès de la mise en oeuvre du plan dépend grandement du comité permanent de la R&D de l'A.C.C. et du directeur de la R&D avec l'appui et l'orientation du conseil d'administration alliés à la collaboration et à la coordination des intéressés externes.

Il est nécessaire à la réalisation du plan que le comité adopte une méthode proactive concentrée dans l'exécution de ses responsabilités. Les membres du comité seront ainsi responsables au conseil d'administration de l'A.C.C. et à leurs sociétés respectives pour leur exécution du plan.

Pour qu'il puisse remplir son rôle efficacement, la structure du comité de la R&D, son mandat, ses attributions et ses objectifs sont stipulés (voir les pages 11-14) en rapport avec l'ensemble du plan d'entreprise et en faveur de celui-ci.

RÉSUMÉ DE LA DIRECTION (suite)

Directeur de la R&D

Une attention à plein temps et une position dominante sont essentielles pour satisfaire aux exigences du plan d'entreprise et pour répondre, sur une base permanente, aux membres de l'A.C.C., individuellement et collectivement, et aux intérêts nationaux. Le directeur de la R&D fournirait cette participation permanente, de même qu'un sens du commandement.

En juin 1988, le rapport intitulé «Preliminary Recommendations and Options for the Coal R&D Business Plan» a été soumis au conseil d'administration de l'A.C.C. On y recommandait de créer un poste de directeur de la R&D à plein temps. Cet élément important au succès de la mise en oeuvre du plan d'entreprise a été approuvé par la suite et le poste a été comblé en janvier 1989.

Le rôle du directeur en tant que président du comité de la R&D fournira une force cohésive parmi les membres du comité en facilitant, en accélérant et en surveillant ses activités. Le rôle et les autres responsabilités du directeur sont définies aux pages 15-17.

Elaboration des stratégies et des programmes

La responsabilité de la formulation de stratégies et de programmes de recherche précis incombe au groupe de planification de la RD&AR de l'A.C.C. en collaboration avec d'autres intéressés. En conséquence, elle n'est pas mentionnée dans le présent plan d'entreprise.

RÉSUMÉ DE LA DIRECTION (suite)

Élaboration des stratégies et des programmes (suite)

Cependant, certaines préoccupations de base (voir les pages 18 et 19) requièrent une certaine attention. Les recommandations ci-dessous sont offertes en vue de faire face à celles-ci :

1. Diviser les programmes en groupes d'intérêts communs de façon à procurer quelque chose de significatif à tous.
2. S'efforcer d'effectuer un changement d'attitude là où la préoccupation de la protection de l'avantage concurrentiel sur l'innovation technologique est passé de la société individuelle à l'industrie charbonnière canadienne dans son ensemble.
3. Rechercher des méthodes de prouver d'une façon tangible l'avantage économique et les acquis nets afin de neutraliser les critiques négatives relatives à l'importance de la R&D.
4. Fournir périodiquement un manuel à jour renfermant les sources de fonds pour la R&D, leurs normes d'application et les moyens d'accélérer l'obtention de ces fonds.

Financement de la RD&AR

L'appui financier de l'industrie et des gouvernements est essentiel à un programme de RD&AR efficace. Les fonds de l'industrie proviennent de sources internes et sont considérés comme des frais commerciaux de l'entreprise, tandis que les gouvernements génèrent des fonds par l'imposition de charges fiscales et de redevances. La concurrence pour obtenir ces fonds est acharnée, non seulement dans les industries de

RÉSUMÉ DE LA DIRECTION (suite)

Financement de la RD&AR (suite)

l'énergie et des ressources, mais aussi dans les domaines plus exceptionnels de la technologie de pointe. On se soucie également de l'allocation des fonds de recherche sur le charbon par le gouvernement et l'industrie.

Comment identifier et obtenir rapidement des fonds de recherche du gouvernement et établir le niveau approprié de financement pour la RD&AR sur le charbon sont d'importantes considérations pour l'industrie.

Trouver une solution réalisable au financement de la RD&AR et à toutes ses incidences est compliqué et long. On a donc jugé que cette responsabilité devrait incomber au directeur de la R&D, qui devrait s'en occuper de façon permanente.

Cependant, les préoccupations et les recommandations générales mentionnées aux pages 21-25 serviront de base et de guide à une évaluation plus poussée et à une solution ultérieure.

Gouvernement fédéral/provinciaux

Il est très clair qu'on s'attend à ce que l'industrie charbonnière participe de façon significative à la direction et à l'appui financier de la RD&AR dans l'avenir. Des énoncés de politique récents émis par le gouvernement sur la RD&AR identifient des cibles clés pour CANMET relativement au secteur privé et soulèvent la question de savoir si le gouvernement devrait s'occuper de la R&D ou non (voir page 27).

RÉSUMÉ DE LA DIRECTION (suite)

Gouvernement fédéral/provinciaux (suite)

La réalisation du plan d'entreprise constituera une étape importante par l'industrie en vue d'une collaboration et d'une coordination entre toutes les parties visant une stratégie qui soit concentrée et fondée sur des principes commerciaux à l'égard de la RD&AR.

On croit aussi que les gouvernements devraient examiner leurs organismes de façon à améliorer leur efficacité et leur compétence. Dans ce sens, il faut veiller à ne pas diminuer l'importance du charbon et de la recherche sur le charbon.

Quelques points importants soumis à la considération du gouvernement sont mentionnés plus loin (voir page 28).

Groupe de recherche

Le personnel et les installations de recherche sur le charbon au Canada sont en mesure de répondre aux besoins de l'industrie charbonnière, mais le manque de concentration et de direction a produit un chevauchement et un double emploi des activités de recherche, qui ont entraîné une utilisation inappropriée et inefficace des fonds.

Pareillement, il semble que les efforts de recherche sur le charbon peuvent, dans certains cas, être mieux servis par la centralisation de certaines fonctions, de certaines personnes et de certaines installations. Le Centre de recherche sur le charbon à Devon (Alberta) constitue un bon exemple de cela et, comme tel, il fera l'objet principal des observations, de la position et des recommandations (voir pages 30-33).

RÉSUMÉ DE LA DIRECTION (suite)

Groupe de recherche (suite)

La fusion de Devon est compliquée et présente un certain nombre de questions difficiles qu'il faut résoudre. Si, en conséquence, la restructuration ne peut être rationalisée cette fois-ci, il faudrait songer à établir un «comité national de recherche sur le charbon». Ce comité présidé par l'industrie et représentant tous les intéressés pourrait fournir un forum central pour la direction, la communication et la coordination des efforts de recherche sur le charbon (voir page 33).

La R&D à l'échelle internationale

Il est important de superviser les activités de recherche dans le monde entier et d'entretenir des liens technologiques solides entre l'industrie charbonnière canadienne et ses homologues étrangers. En outre, il faut faire preuve de prudence quant à l'utilisation des technologies étrangères et éviter le double emploi chaque fois que cela est possible et prudent.

Consommateurs de charbon

Il est essentiel à nos efforts de recherche de connaître les besoins présents et futurs des consommateurs et de savoir dans quelle direction ils se dirigent car ils influencent l'utilisation du charbon. Un lien de communication permanent entre les représentants des producteurs de charbon qui sont régulièrement en communication avec les consommateurs de charbon peut être très précieux pour le directeur de la R&D et le comité de la R&D lors de l'étude des besoins futurs en recherche.

SECTION I - BACKGROUND

The Canadian coal industry recognizes that coal research, development and demonstration (RD&D) is an important factor in assuring the continued survival and growth of the industry. Research and development is the vital link to technological innovation. Over recent years, difficult times and strong international competition have reinforced the need for technological innovation to diversify and increase coal usage and to reduce costs so as to improve the marketability and competitiveness of Canadian coals.

Coal is a vital part of Canada's energy security and as such, needs a national approach to RD&D to ensure that technologies are developed that permit this important fossil fuel to be used safely and efficiently while protecting the environment. The growing concern regarding coal's contribution to the "changing atmosphere" and the pressures from alternate fuels necessitates industry and government focusing the appropriate research efforts to ensure coal's long term acceptability.

RD&D efforts, whether on an individual company or consortia basis or to satisfy overall coal industry needs must be efficiently and effectively managed in conjunction with the various government agencies and the research community. From an overall perspective, coal research efforts have lacked clear focus and a managed approach among the involved parties.

Individual companies provide the internal focus appropriate to their own needs but in many cases are beset with the many complexities encountered in getting government funding and dealing effectively with the research community.

SECTION I - BACKGROUND, cont'd.

Frequently, the coal companies individualistic approach to RD&D coupled with lack of overall focus and coordination between industry, government and the research community has resulted in duplication and unproductive use of funds.

The coal industry's primary concern centers around applied research or technological implementation, seeking near term benefits. Consequently there appears to be a lack of appropriate interest in directing and supporting long term RD&D.

To a large degree, the federal and some provincial governments have provided the major direction and financial support for industry's research, development and demonstration activities. These efforts have been primarily responsive to bureaucratic, political and scientific interests with some perception of industry's needs rather than being strongly influenced by industry's real needs. This is in part due to industry's failure to have a more proactive, managed approach with ongoing involvement with governments and the research community.

The coal research facilities and personnel in Canada are fully capable of supporting the requirements of the coal industry. However, the public research sector has experienced some overlapping and duplication within itself, with the private sector and with manufacturer's research programs. In some cases, the private research sector has felt disadvantaged when competing with the public research sector.

SECTION I - BACKGROUND, cont'd.

Coal research policy, regarding the appropriate allocation of funds between basic research, applied research and long term strategic research, has not been established among the involved parties.

The coal industry is made up of several major segments, i.e. producers, consumers, equipment manufacturers, etc. that have different interests and concerns as it relates to research. Even the coal producers have varying interest relative to the quality and end use of their product. Consequently, it is difficult to find broad areas of common interest or purpose.

Funding is a vital aspect of a vigorous and successful research program. It follows that industry's efforts must be directed toward seeking proper financial support for research and toward assuring that such funds are effectively and efficiently applied and utilized.

In consideration of the above, this business plan will establish the appropriate organization, working closely with the involved governments and the research community, to focus, direct and monitor the industry's overall research efforts. Additionally, this plan will examine the funding situation and the working environment between industry, governments and the research community.

SECTION II - COAL INDUSTRY

Current Situation

In the development of the plan for RD&D for the Coal Association of Canada, it was crucial to have an understanding of the underlying attitudes, beliefs and positions of individual company members as it relates to RD&D. This was to ascertain if and where there were areas of common interest as well as the weaknesses in the industry approach to RD&D.

Interviews and discussions were held with various levels of management with most membership companies. Additional insight into how industry's role was perceived was gained through interviews with various government and research agencies.

As one would expect, there was a wide range of feelings toward RD&D and industry's role in it throughout the membership. This complicates the development of a business plan that industry would agree to and support in all aspects. The challenge to the membership, in addition to its individual company interests, is to work together in such a way as to enhance the Canadian coal industry as a whole.

The following summarizes the major findings that are of concern looking inwardly at the industry and which defines where we are now (current situation) and what must be recognized and dealt with in setting the new direction. In later sections, industry's outward view of government and the research community and the findings regarding this will be covered.

o In this highly competitive coal market, individual companies will consider their self interests and competitive position first with regard to confidentiality and secrecy in their technological innovations.

SECTION II - COAL INDUSTRY, cont'd.

Current Situation, cont'd.

- o The coal companies have been reluctant to collaborate or transfer technology on RD&D so as to elevate the technology level and the competitive position of the Canadian coal industry as a whole.
- o Due to difficult economic times, a strong negative attitude toward additional financial commitment for RD&D exists among most companies.
- o The coal companies are primarily interested in short term technological implementation (applied research) and feel that basic research and long term research activities are appropriately the responsibility of the various government groups.
- o The existing "Terms of Reference" for the R&D Committee is lacking in a clear and meaningful definition of the committee's responsibilities and accountability, attuned to current and future needs.
- o A lack of strong company belief in and support of the importance of the R&D Committee's role and in mandating accountability to its representatives.
- o Insufficient time involvement by the R&D Committee leadership required to provide the cohesive force to initiate, implement and monitor the committee's activities and the industry's needs.

SECTION II - COAL INDUSTRY, cont'd.

The Direction

The membership fully recognizes and agrees that the "current situation" cannot remain "status quo" but that significant changes are necessary in attitudes, cooperation and in looking forward and working together to meet the technological needs of industry so as to ensure its growth and economic health over the long term.

In order for this new direction to have substance and definition and to provide the basics for dealing with the current situation and future conditions, the following sets forth industry's coal research direction.

MISSION STATEMENT

To actively promote, through discussion and coordination of members, governments and the research community, a level of cost-effective research, development and demonstration meeting the industry's need and directed toward new and increased coal usage through improvement of the Canadian Coal Industry's competitive position while protecting the environment and the health and safety of all.

POSITION STATEMENTS

As the "Mission Statement" is in itself a broad expression of the direction and goals of the Coal Association, there must be a set of guidelines or position statements that represent the consensus of the memberships' interests, attitudes and concerns. The "Mission Statement" and the following "Position Statements" set the basic tone and direction from which evolved the objectives and the plan to implement them.

SECTION II - COAL INDUSTRY, cont'd.

The Direction, cont'd.

POSITION STATEMENTS, cont'd.

1. The coal industry's major area of interest and support commitment is applied research while recognizing the need to give appropriate but limited support to basic research and long term research.
2. The companies commit to providing focus and direction to the industry's R&D activities in conjunction with government, the research community and the support sector.
3. The member companies will cooperate to the greatest extent possible on technology transfer and collaborate on research, development and demonstration so as to enhance the technology level and the competitive position of the Canadian Coal Industry as a whole.
4. The companies regard the R&D Committee as the technical link between the C.A.C. companies and with outside agencies. Through the committee the R&D requirements of the companies both individually and collectively will be communicated and focused for their effective and efficient implementation.
5. In supporting the important role of the R&D Committee, the individual companies will provide appropriate personnel and the necessary time to permit the committee to properly discharge its duties. The companies look upon their representative's committee responsibilities as an extension of their company's work with like accountability.
6. The companies fully support the position of Director, R&D and assure cooperation at all levels to assist the Director in effectively

SECTION II - COAL INDUSTRY, cont'd.

The Direction, cont'd.

POSITION STATEMENTS, cont'd.

carrying out the position responsibilities. The companies expect this position to provide benefits both tangible and intangible that sustains its viability.

7. The C.A.C. endorses the concept of amalgamation of the three research organizations at Devon into a single entity so as to effect more efficient administration, more effective management and to reduce duplication of research efforts. The companies would be prepared to participate in an industry dominated Board of Directors. The companies expect that the new entity would be a self sufficient entity over time.
8. The companies would support Devon at approximately its current level of coal industry work and would expect the new entity to seek out and develop additional industry work by aggressive marketing of its services.
9. The companies will vigorously pursue an equitable share of government funds for coal research, development and demonstration. Federal and provincial governments financial support is vital to industry's research efforts and to the growth and health of one of Canada's critical energy resources.
10. The Canadian coal industry is diametrically opposed to any government production levy or reserve assessment being imposed to fund coal research or research institutions.

SECTION II - COAL INDUSTRY, cont'd.

The Plan

STRATEGIC OBJECTIVES

The "Mission Statement" and the "Position Statements" set forth the purpose and direction for coal research from the perspective of the Coal Association of Canada's membership. Using these as the base, the following main objectives outline the expectations of this business plan for the near term and, in general, for the future.

1. To ensure that coal research programs are market driven and demonstrably important from a business perspective.
2. To implement a comprehensive and systematic approach to planning and prioritizing coal research taking into account the varied interests and needs of the membership and the various markets that are involved.
3. To convince various government agencies of the critical need for appropriate financial support of coal research on an on-going long term basis.
4. To provide government agencies and the public and private research sectors with a cohesive, focused industry position on coal research.
5. To work more closely with the coal consumers in relation to coal research and its potential impact on the marketability of Canadian coal.
6. To promote a knowledge of the technical and research aspects of the coal industry to university students so as to attract strong technically-oriented personnel into the industry.

SECTION II - COAL INDUSTRY, cont'd.

The Plan, cont'd.

STRATEGIC OBJECTIVES, cont'd.

7. To develop a "Coal Research Funding Manual" which would include federal and provincial government funding sources, their applicability and the means to expeditiously access such funds. This manual would be available to the membership and periodically updated.
8. To encourage governments to simplify procedures relating to industry/governments cooperative undertakings.
9. To promote the effective and efficient use of all research funding.

R&D Committee

The C.A.C. R&D Standing Committee in conjunction with the Director of R&D form the industry organization through which the R&D requirements of the companies both individually and collectively are to be communicated and focused for their effective and efficient implementation. This organization also serves as the technical link between the C.A.C. companies themselves and also with outside agencies.

In order for this committee to function properly and serve a useful purpose, its role must be clearly defined. The following covers the major aspects of the R&D Committee's duties.

SECTION II - COAL INDUSTRY, cont'd.

R&D Committee, cont'd.

MANDATE

To provide coordination and cooperation among the member companies to achieve the most effective and efficient use of research efforts and funds for their mutual benefit, to be the industry's cohesive link with outside agencies in focusing, directing and prioritizing overall research and development policies and programs and to maximize the return on research, development and demonstration investment.

TERMS OF REFERENCE

- o Where possible the members of the committee shall strive to minimize secrecy and confidentiality in research activities.
- o The coal industry's major area of interest and support is applied research seeking near term benefits while recognizing the need to give appropriate (i.e. direction to Government/University efforts) support to basic and/or long term research.
- o The coal companies will cooperate on technology transfer and collaborate on research, development, and demonstration so as to enhance the technology level and the competitive position of the Canadian Coal Industry as a whole.
- o The committee shall provide a proactive focused approach in carrying out the industry's research programs.
- o The committee shall promote and actively practice cooperation and coordination among the members in all aspects of research.

SECTION II - COAL INDUSTRY, cont'd.

R&D Committee, cont'd.

TERMS OF REFERENCE, cont'd.

- o The committee shall promote research activities in coal.
- o Representatives to the R&D Committee will reflect the policy of their member companies.
- o The R&D Committee will ensure that current research needs/activities are communicated to other committees and working groups of the C.A.C.

OBJECTIVES

- o To develop a consistent set of guidelines defining research, development and demonstration.
- o To develop and recommend to the C.A.C. Board of Directors strategies and plans as may be required for research, development and demonstration.
- o To identify and focus the research, development and demonstration needs of the Canadian Coal Industry within areas such as: coal utilization, cost reduction, environment, health and safety.
- o To examine and revise as required the 1985 report entitled "Priority Topics for Coal Research and Development".
- o To communicate the research needs to the C.A.C. Board of Directors for review and authorization.
- o To monitor R&D programs that are being carried out within or relevant programs outside the industry to avoid duplication of R&D effort and

SECTION II - COAL INDUSTRY, cont'd.

R&D Committee, cont'd.

OBJECTIVES, cont'd.

inefficient use of funds and to assure industry that its focus and direction are being sustained.

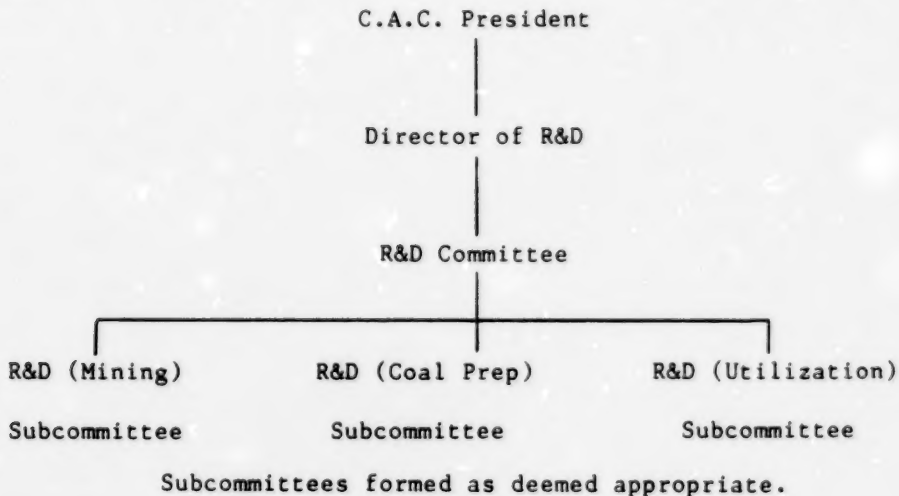
- o To establish industry consensus on research issues that arise from time to time so that the Chairman (Director R&D) can properly represent a unified industry position to outside parties.
- o To participate individually or representing C.A.C. in the various advisory committees, i.e. MNACC, IPACE, NSERC, PERD, etc., and to liaise as required with those individuals from industry who may now serve, or will serve on such committees.
- o In conjunction with the Human Resources Committee, work with University students to encourage them to pursue careers in engineering and technical science related to the coal industry.
- o To provide appropriate assistance and direction to various research centres to ensure that the industry's research needs are known and carried out (for example - Devon Coal Research Centre).
- o To monitor research, development and demonstration activities nationally and internationally and to focus and use such information to supplement or modify the CAC's plans as appropriate.
- o To be current on all sources of research funding and the means to readily access such funds.
- o To provide overall support to the Director - R&D so that he can effectively and efficiently represent the research interests of the membership.

SECTION II - COAL INDUSTRY, cont'd.

R&D Committee, cont'd.

COMMITTEE STRUCTURE (See Block Diagram)

- o Chaired by the full time Director of R&D with the Vice-Chairman elected from the company members.
- o Main R&D Standing Committee to focus on overall activities and strategic planning in support of the Board of Directors.
- o Incorporate permanent subcommittees or temporary working groups when required to focus on small segments of the R&D activities which have greater commonality of interest, such as mining, coal preparation, utilization, environment, etc. Working group members would draw on non-committee members from the companies, other C.A.C. committees as appropriate, or elsewhere if warranted.
- o Within the R&D Committee there will be a balanced variety of disciplines.
- o Main committees meetings to be held on regular quarterly basis with subcommittee meetings held on a more frequent, as needed basis.



SECTION II - COAL INDUSTRY, cont'd.

Director of R&D

A vital component of the C.A.C. R&D organizational structure is the Director of R&D who instills the proactive, focused, managed approach to all aspects of coal R&D and who gives the full-time leadership essential in achieving the business plan objectives in close association with the R&D Committee.

The significant elements of this position are as follows:

MANDATE

- o To influence the direction of research, development and demonstration for new and increased coal usage and for improvement of the Canadian Coal Industry's competitive position.
- o To provide effective and efficient management of the industry's R&D activities, coordinating such activities with the appropriate government, research and private sectors.
- o To ensure that these activities are technically feasible, economically viable and satisfy a technological business objective.
- o To assist individual and group members in the process of developing their research programs while maintaining appropriate confidentiality.
- o To promote research required to deal with specific environmental concerns relating to coal.

SECTION II - COAL INDUSTRY, cont'd.

Director of R&D, cont'd.

MAJOR RESPONSIBILITIES

- o Focus and manage industry's R&D needs.
- o Develop and implement the Membership's strategic plans for R&D as specifically authorized by C.A.C. B.O.D.
- o Determine R&D project priority in conjunction with industry and government interests.
- o Assist individual or groups of companies' research efforts where requested (in confidence where specified).
- o Coordinate industry's R&D with government agencies, public and private research sectors.
- o Encourage cooperative base load research to help ensure continuity of research programs (Devon).
- o Assist in obtaining and expediting government research funding.
- o As Chairman of C.A.C. R&D Standing Committee, be the cohesive force in utilizing the time and expertise available from its members in the most meaningful and productive manner.
- o From time to time participate in upgrading the terms of reference and the committee structure to meet current and future needs.
- o Form close liaison with senior management of industry, research and government to enhance communication in R&D.
- o Monitor domestic and foreign coal R&D.
- o Promote technology transfer within the industry.
- o Assist in lobbying government policymakers for support of coal industry R&D.

SECTION II - COAL INDUSTRY, cont'd.

Director of R&D, cont'd.

MAJOR RESPONSIBILITIES, cont'd.

- o Active participation in the restructuring of the proposed Devon Entity and subsequently in assisting in directing and monitoring its activities.
- o Provide a consistent and informed voice for the coal producer's R&D needs by being its representative on such committees as:
 - a. Minister's National Advisory Council to Canmet (MNACC) Coal Technology Subcommittee;
 - b. Interprovincial Advisory Council on Energy (IPACE) Coal R&D Coordinating Committee;
 - c. Canadian Carbonization Subcommittee;
 - d. Others, where appropriate.

AUTHORITY AND ACCOUNTABILITY

- o Authorized by the Board of Directors of the Coal Association of Canada to act for the membership on matters relating to R&D.
- o Accountable to B.O.D. through the President of C.A.C. on such matters.

SECTION II - COAL INDUSTRY, cont'd.

Strategy and Program Development

The formulation of specific and detailed research strategies and programs for the coal industry was not included in the scope or intent of this business plan. This is considered appropriately the responsibility of industry's research planning group, namely the C.A.C. Board of Directors, the R&D Committee and the Director of R&D, in conjunction with other involved parties.

However, it may be well to explore some general thoughts that can impact on the development of research strategies and programs and the setting of priorities.

As external conditions and needs are ever changing, it is important that the coal industry's research strategies and programs are flexible to the extent they can be modified and redirected to accommodate these situations.

In addition to the external consideration, within the industry there are other inherent concerns that should be given recognition and attention in approaching the formulation of research strategies, programs and prioritization. Some of the concerns are presented, followed by suggestions which may minimize their impact.

Firstly, it must be recognized that the coal industry, even if limited to those companies in the Coal Association of Canada, is not a homogeneous industry but one where significant differences exist in their markets, the type and quality of product, mining conditions, economic health and social and political environment.

Secondly, to some degree, there will continue to be a protectionist

SECTION II - COAL INDUSTRY, cont'd.

Strategy and Program Development, cont'd.

attitude among some companies when they have a technological innovation that might provide a competitive advantage.

Thirdly, the economic justification of research and development activities is, in most cases, very difficult to verify in bottom-line benefits. Consequently, while some companies feel that significant R&D commitments are essential to the long term survival of the industry, others are hard pressed to support significant R&D commitments particularly in times of economic hardship.

Fourthly, the continued availability and utilization of government funds are critically important to a vigorous and successful industry R&D effort. Usually these funds are fiscal-budget oriented and, to some extent, subject to wanderings of bureaucratic, political and scientific interests. Location and ready access to such funds is in many cases difficult and very time consuming to the point where some companies will not apply for government funding.

The following recommendations may alleviate some of the impact of the above concerns:

1. Segregate strategies, programs and priorities into several groups where there is some common interests so there is something that is meaningful to all.
2. Strive for an attitudinal change where the concern for protecting competitive advantage on technology innovation is shifted from the individual company to that of the Canadian coal industry as a whole.

SECTION II - COAL INDUSTRY, cont'd.

Strategy and Program Development, cont'd.

3. Seek out ways and means to demonstrate the economic benefit and the bottom-line gains in a tangible way and create an awareness of this to counteract the stigma as to the value of R&D. One approach to this is the "make good" study or report.
4. As suggested earlier, a periodically updated manual of the various sources of funds, their application criteria and the means to expedite the obtainment of such funds.

Monitoring the "Plan"

A major commitment is being undertaken by the membership of the Coal Association of Canada with this Business Plan, and with the authorization of a significant expansion of the role of the R&D Committee and the establishment of the position of Director of R&D within the CAC

It is vital that all these elements for improving the R&D efforts get underway properly and that the expectations and objectives of this program are met in an orderly and timely manner.

In order to ensure this and establish a "results-oriented" philosophy, it is recommended that a comprehensive report comparing the plan versus accomplishments in support of the plan, be undertaken by the Director - R&D.

At least initially, this should be done on a semi-annual basis and less frequently as appropriate in the future. The Director's report provide a means whereby the Executive Committee of the Board of Directors and an independent observer can monitor, in detail, the progress of the research program.

SECTION III - RD&D FUNDING

Industry Concerns and Recommendations

An in-depth examination and formulation of a workable business approach to RD&D funding and all its implications would be complex and time consuming due greatly to the ever changing situations in the industry and governments. Therefore this can best be handled on an on-going basis under the responsibility of the Director R&D.

In this section, general concerns and recommendations thereto will be put forth and shall serve as a base and guide to a more comprehensive assessment and recommended solutions by the Director.

The availability of financial support from both industry and governments is crucial to coal research, development and demonstration. Industry's RD&D funds are internally sourced by individual companies as part of their cost of doing business. The magnitude of which is dependent upon:

1. the particular company's philosophy toward the need and value of the research;
 2. the economic health of the company;
 3. the overall needs of the industry.
-
- o It behooves the coal companies, whenever possible to cooperate and to coordinate on projects that have some commonality wherein industry funding can be shared so as to minimize the individual financial burden and thereby maximizing the benefits.
 - o The industry is diametrically opposed to sourcing of research funds by any form of levy or assessment by either industry or governments.

SECTION III - RD&D FUNDING, cont'd.

Industry Concerns and Recommendations, cont'd.

Funding sources should continue to be derived as they have been in the past.

The various governments generate research funds through taxation and/or royalties and the competition for these funds is fierce not only among the energy and resource industries but also from the more exotic high tech interests. Consequently the availability of sufficient government funds on a continuing long term basis is of serious concern to the coal industry.

- o Without question, the coal industry must pursue maintaining or possibly increasing government funding for research. This can be aided by justifying the needs and demonstrating the benefits both on a bureaucratic and political levels. A convincing element in this, is industry developing a reputation as having an efficient, focused and well managed approach internally and with outside parties.

The industry is also plagued with the difficulties in readily identifying the sources of funds, coupled with complexities encountered in accessing and utilizing such funds. This has led, in many cases, to excessive and time consuming efforts, unnecessary frustration and outright abandonment of projects.

- o The development of a "Coal Research Funding Manual" with procedures and methods for accessing these funds will greatly reduce the current inefficiencies and frustrations. EMR's (Coal Division) "Funding for

SECTION III - RD&D FUNDING, cont'd.

Industry Concerns and Recommendations, cont'd.

Coal Research, Development and Demonstration: A Directory of Sources" dated May 1987, is a base from which the Director of R&D can formulate this new source and procedure manual.

- o Industry should lobby government to simplify these processes.

An additional concern in the overall funding situation is in the area of apportionment of coal research funds among the major areas of coal research. Currently there is an absence of even broad guidelines agreed upon by government and industry as to the relative apportionment between basic research, long term strategic research and near term applied research.

- o It is clear that industry's prime concern is and must be applied research programs and projects for which industry and government have a shared responsibility in financially supporting.
- o However, the responsibility for basic and/or long term strategic research is essentially the responsibility of governments and universities. This is not to say that industry should not have a role in the direction and, to some degree, support of these areas of research. Strong consideration should be given to industry and governments setting some guidelines in apportionment and in the division of financial responsibility between industry and government. An example of a percent quantification of this is shown in the following table and should be considered in the near future.

SECTION III - RD&D FUNDING, cont'd.

Industry Concerns and Recommendations, cont'd.

	Percent Apportionment	Percent Sharing	
		Gov't.	Ind.
Total Research	100		
Basic	10	95	5
Long Term	25	95	5
Applied	65	50	50

This apportionment and sharing applies to the total Canadian Coal Industry research efforts not just the C.A.C. membership.

University Funding

Universities research efforts should be primarily in support of the staff and graduate student requirements, and be confined essentially to basic research and limited applied research.

Applied research, development and demonstration is the coal industry prime interest and is most effectively and efficiently carried out "in-house" by a coal company, in commercial public or private research centers or through manufacturer's research capability.

As a consequence, university research funding should continue to be sourced from internal university budgets and government or private grants.

SECTION III - RD&D FUNDING, cont'd.

Funding Levels

It is very difficult to get an accurate record of the past or current levels of research funding. To some degree this is complicated by the varied interpretations of what is actually research, development and demonstration. Therefore an agreed upon definition must be established.

The commonly quoted level to be expended in 1988 is approximately \$40 Million total for governments and industry. It is estimated that about \$10 Million is direct industry funding.

This industry and government research spending has produced some important technological innovations but the level of benefits needed by industry to grow and prosper has not been achieved.

The situation exists wherein the appropriate level of coal research funding is difficult to ascertain because of inefficiencies, duplications, lack of focus and direction that has been symptomatic of the past.

The proper implementation of the Business Plan will minimize the problems of the past and provide the means to assess the demonstrably important research needs of the coal industry. From this, the appropriate level of funding can be more closely determined. Additionally, the industry research investment profile (1982 - 1987) currently being developed will serve as a good historical data base.

SECTION IV - FEDERAL/PROVINCIAL GOVERNMENTS

Current Situations

The federal government and some provincial governments have provided, to a large degree, the major direction and financial support for coal industry research, development and demonstration activities. In part, this could be attributable to an absence of any strong sense of cooperation and coordination with the intended beneficiary, the coal industry.

Some industry participation and input has been sought and received but not to the extent that could be described as a focused single industry voice. Government efforts have been more responsive to bureaucratic, political and scientific interests than to the real industry needs.

Further, bureaucratic complexities with fragmented and overlapping responsibilities in the numerous government agencies involved in coal research policymaking, implementation and monitoring tend to discourage coal companies' participation.

Their Direction

It is very clear that the federal government and those provincial governments who actively support coal research are going to insist on significantly more participation in both directional and financial support from the coal industry in the future. Recent federal government policy statements on R&D indicates the following key targets for Canmet in relation to the private sector.

SECTION IV - FEDERAL/PROVINCIAL GOVERNMENTS, cont'd.

Their Direction, cont'd.

- o Increase industry cost sharing on contract work to 50% of Canmet's expenditures. This is considerably more than currently experienced.
- o Double the cost recovery revenues from clients for the routine use of the specialized facilities and for non-routine use of unique government expertise on R&D projects.
- o Decreasing by 50% unsponsored in-house projects to a maximum of 10% of all projects.
- o Increased secondments to staff to and from the private sector.
- o Increase by 10% per year the in-kind contributions by industry clients to Canmet's in-house R&D projects.

However, overshadowing all of this, in consideration of the Federal Government's new Science and Technology Policies, is the concern whether R&D should be performed by government or the private sector, in-house or by contract or by combination of these.

Comments and Recommendations

The implementation of the Business Plan will be a major step by industry toward cooperation and coordination between industry, governments and the research community which will result in a focused, business based approach to coal R&D. This action should alleviate current concerns and

SECTION IV - FEDERAL/PROVINCIAL GOVERNMENTS, cont'd.

Comments and Recommendations, cont'd.

fulfill the expectations of government regarding industry's commitment to and involvement in R&D. A tangible example of this is the creation of the new position of Director of R&D financially supported solely by the C.A.C. membership. The Director's main responsibilities include working directly with all government agencies representing the membership in R&D matters.

Although some organizational changes have been taken by EMR Canada to improve its efficiency and effectiveness extreme care must be taken by the government where such organizational undertakings do not lower the stature or importance of coal or coal research. This point and the following points should be pursued with the government.

1. Examine ways and means to consolidate the government coal R&D responsibilities which would lead to improved industry/government communications and simplified procedures to accessing and utilizing funds.
2. In the federal government's examination of its research functions in the future with a possible shift toward privatization, it is recommended that government continue to provide research facilities and personnel for long term strategic coal research and some basic research. The consideration of full or partial privatization is most appropriate in relation to near term applied research.
3. It is important that government recognize the need and value of a private sector research capability and should give due consideration to protect this service.

SECTION V - RESEARCH COMMUNITY

Current Situation

The coal research facilities and personnel in Canada are fully capable of supporting the needs of the coal industry. However, the public research community has experienced some overlapping and duplication of research activities within itself and with the private sector and manufacturing companies' research. Further there is a lack of positive direction and this leads to inappropriate and ineffective use of research funds.

Coal research efforts may be better served by a consolidation of certain research functions, people and facilities coupled with a more business oriented management approach.

The Coal Research Centre at Devon presently houses three research organizations, namely Alberta Research Council, Canmet's Coal Research Laboratories and the Coal Mining Research Company. Each entity essentially operates independently having separate administrative staffs and conducting separate but sometimes overlapping research activities. This prompts the question as to the appropriateness of this arrangement as it is related to optimizing the utilization of Devon personnel and facilities.

The situation at Devon will be the principle area of concern of this section. The governments general direction on this issue will be covered and industry's position outlined.

SECTION V - RESEARCH COMMUNITY, cont'd.

Government Direction: (Devon)

The basic proposal is to amalgamate the three research organizations at Devon into a single research entity with its own corporate identity. The restructured center would be governed by an industry dominated Board of Directors, with other members drawn from EMR Canada, ARC and others. The essential ingredient to the success of the Centre, from the governments viewpoint, is that long term funding would be shared approximately -

1/3 Federal

1/3 Industrial (members of Coal Association of Canada)

1/3 Provincial (predominantly Alberta)

The Center would provide technical service, and research and development to the Canadian Coal and related industries. The concept centers around Devon being a "National Coal Research Centre" carrying out a balanced research program with short, medium and long term horizons.

This proposal is very much in the formulative stage and consequently final content of the proposal is yet to be determined.

Industry Position: (Devon)

As the final detailed proposal has not been developed and presented to industry, it is somewhat premature to present industry's final position at this time. However, certain aspects are fundamental to the industry and the following positions have been established:

SECTION V - RESEARCH COMMUNITY, cont'd.

Industry Position: (Devon), cont'd.

- o The C.A.C. fully supports the concept of a single coal research entity formed by the amalgamation of the three research organizations currently located at Devon.
- o The long term goal of the new entity should be self sufficiency.
- o The member companies of the Association currently fund approximately 10% of the total expenditures attributable to Devon. The members presently expect to maintain research and development expenditures approximately equal to this level.
- o The new entity must develop an on-going vigorous campaign to market its services throughout the coal and related industries. This marketing effort and an effective and efficient research performance should increase the industry's usage of this centre.
- o The Coal Association of Canada through its members would provide qualified senior industry representation to serve on the Board of Directors of the new entity and will make its Director of R&D available to serve on the B.O.D.
- o The Devon Centre will not be the sole centre for coal research in Canada. It is not desirable or practical that Devon should attempt to satisfy all coal industry research needs. Further, the private research sector must be utilized to an appropriate degree.
- o In funding the Devon entity, the industry supports a margin or overhead charge to all work performed by the entity on industry projects. This would form a source of funds to cover administrative and general expenses and whatever additional costs deemed appropriate by the B.O.D. of Devon.

SECTION V - RESEARCH COMMUNITY, cont'd.

Industry Position: (Devon), cont'd.

- o It is recommended that, in addition to Alberta, other coal producing provinces be involved so that the entity will have a broader provincial representation.
- o The C.A.C.'s Director of R&D will be required to actively participate in conceptualization, direction and monitoring of the on-going activities of the new entity.

Comments and Recommendations

DEVON

The key to the success of Devon is the management team and the scientific and technical staff. The management team must be experienced and capable of running a results oriented, self-sufficient business entity. Equally important, the staff must have a genuine desire to work in this environment and be motivated and dedicated to the success and longevity of the entity.

It is fully understood that the amalgamation of personnel from three separate organizations is not simple. However with the governments proposed secondments approach care must be taken in stating that all will keep their jobs and this is a five year trial period. This could have a demotivating effect and impact negatively on the workplace attitude in a results driven business organization. The different unions involved further complicate the development of the organization.

SECTION V - RESEARCH COMMUNITY, cont'd.

Comments and Recommendations, cont'd.

DEVON, cont'd.

The amalgamation of Devon could provide a useful contribution in facilitating some aspects of the Business Plan. This would be accomplished by the establishment of the new entity as the central or focal point for disseminating policy and direction and for coordinating the major coal research activities among the parties.

In the event, the complications of amalgamation prevent or defer the undertaking, it may be advisable to establish a "National Coal Research Committee" to provide a central forum for directing and coordinating coal research efforts. This committee should be chaired by industry (possibly CAC's Director of R&D) with members from federal and provincial governments, research centres and representatives from the associations, committees or advisory groups involved in coal research activities. This national committee could also replace or consolidate some of the activities of other existing committees or advisory groups, thereby providing a singular communication channel so important to a focused, well managed national coal research program.

SECTION VI - INTERNATIONAL RD&D

Commentary

The coal research activities that are carried out throughout the world should be continually monitored by both government, research centres and industry interests. For C.A.C.'s interest, the Director of R&D has the overall responsibility to be current on those areas of significance to the industry.

The coal industry and the research community should not be adverse to seeking out and using foreign technology as much as possible, however care must be taken not to thwart Canadian coal research efforts. Fundamentally, research funds should be used in such a way as to minimize duplication of efforts whether nationally or internationally. Due consideration should be given to technology exchange when the interests of all parties can be equitably met.

It is very important to maintain strong technological linkage between the Canadian coal industry and their foreign counterparts.

SECTION VII - COAL CONSUMERS

Commentary

As stated previously, the coal industry is not homogenous, there are different qualities and uses of our coal products and consequently different consumers and potential markets to deal with. These existing coal consumers and other potential users of coal are always examining how to best utilize coal, what are other alternatives or what are new uses of coal.

It is important that the coal industry and the associated research groups are fully aware of the near and longer term uses and quality requirements of our various coals from both existing and potential consumers. It can be a significant element in determining research and development strategies and direction into the future.

In part, this awareness and knowledge can be enhanced by establishing an on-going communication link between those coal company representatives (marketing/sales and other people who are regularly in contact with the users) and the C.A.C. R&D Subcommittee (Utilization). Periodic technical meetings between coal producers and consumers could further aid in determining future research needs.